

Massachusetts RPS Solar Carve-Out: Overview & Program Basics

November 2, 2011

Outline

- Learn how the solar PV market has grown in MA since 2007
- Understand the policy design of the MA RPS Solar Carve-Out
- Update on the current status of the market

MA RPS Class I Program

- Established in 1997, first year of compliance in 2003
- Eligible technologies include solar PV, solar thermal electric, wind, ocean thermal, wave or tidal energy, fuel cells, landfill methane gas, small hydro, low-emission biomass, marine or hydrokinetic energy, and geothermal electric
- Generation Units from New England and adjacent control areas (i.e. New York and maritime Canadian provinces) may qualify
- Minimum Standard of 6% in 2011
- Set to increase by 1% each year going forward

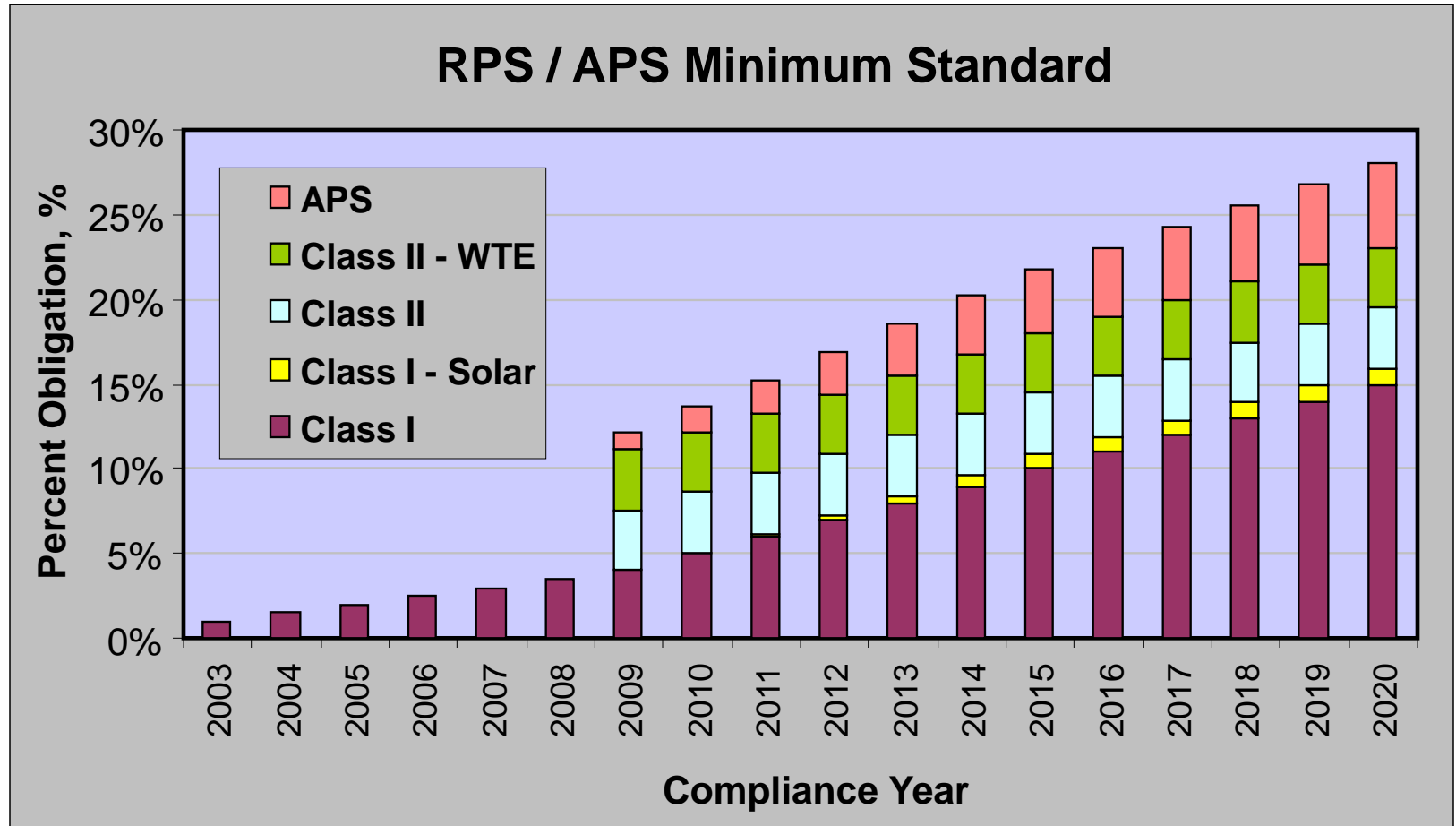
MA RPS Program

- In 2008, 3 new classes were added to the RPS
 - Class II Renewable Energy for facilities in operation prior to 1998 (mostly small hydro, LFG, and biomass)
 - Class II Waste-to-Energy for waste-to-energy facilities located in MA
 - Alternative Portfolio Standard (CHP and flywheel storage projects)
- In 2010, a Solar Carve-Out was added for Class I
- Obligation is part of the Class I total, but has different market parameters and qualification process

Summary of MA Renewable Energy Portfolio Standard (RPS) Programs

RPS Class	Sub Class	Technology	Minimum Standard	2011 ACP Rate, \$/MWh
Class I		Wind, LFG, Biomass, Solar, Small Hydro, etc.	6% in 2011, increases 1%/year	\$62.13; increases with CPI
	Solar Carve-Out	Solar PV; 6 MW or less, in MA	set by formula to grow installed capacity to 400 MW	\$550; can be reduced by DOER
Class II	Renewable	same as Class I	3.6%, stays constant	\$25.50; increases with CPI
	Waste Energy	Waste to Energy Plants, in MA	3.5%, stays constant	\$10.20; increases with CPI
APS		CHP in MA, flywheels, storage, etc.	2% in 2011; increases to 5% in 2020	\$20.40; increases with CPI

Cumulative Obligations of RPS / APS* Programs



*Alternative Energy Portfolio Standard (APS)



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Massachusetts Solar Development Strategies (Pre Solar Carve-out)

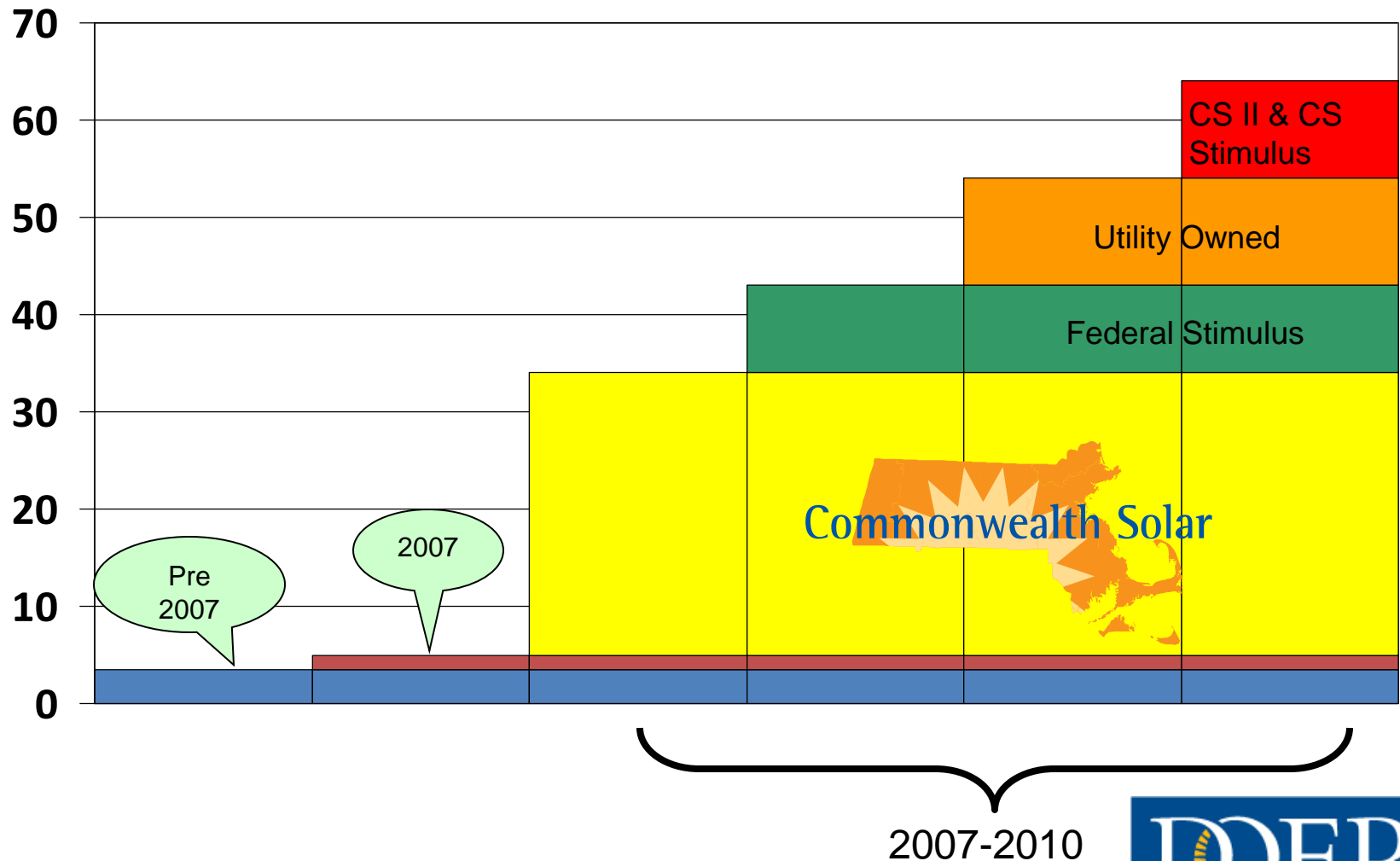
- Governor Patrick's goal – 250 MW by 2017
- Commonwealth Solar (Rebates) – initiated Dec. 2007
 - Rebate Program: \$68 million, 27 MW
 - Successfully achieved and completed Oct. 2009
 - Created robust PV development sector in MA
- Commonwealth Solar II (Rebates) for small (<10kW) systems has maintained residential PV market managed by the MassCEC
- Federal Stimulus/ARRA funds used by DOER to support 10 MW of PV at state/municipal facilities.
- Green Communities Act allows for Distribution Utility ownership of PV Generation
 - National Grid approved for 5 MW, 3.3 MW installed
 - WMECO approved for 6 MW, 1.8 MW installed

Creating A Greener Energy Future For the Commonwealth



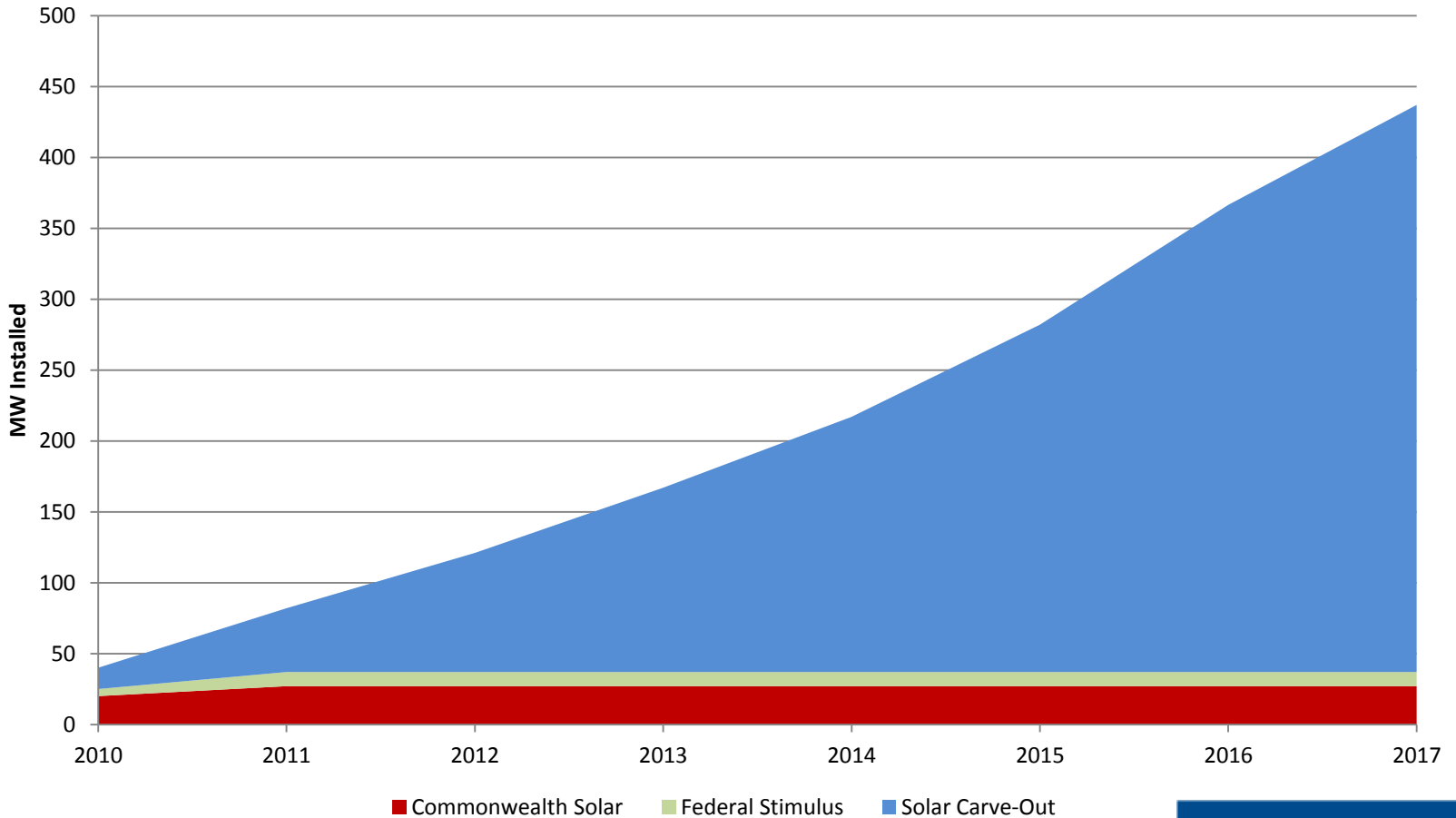
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Installed Capacity Pre-Solar Carve-out



RPS Solar Carve-Out

PV Solar Growth (Cumulative MW)



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RPS Solar Carve-Out Program Design Basics: Generation and Minting

- Market-based incentive, part of the broader RPS Program
- 1 SREC (Solar Renewable Energy Certificate) represents the attributes associated with 1 MWh of qualified generation
- Units must be qualified by DOER before they can begin generating SRECs
- All generation is metered and reported to MassCEC's Production Tracking System (PTS)
- MassCEC reports generation to NEPOOL GIS where SRECs are minted on a quarterly basis

Qualification Process

- Eligibility criteria
 - Have a capacity of 6 MW (DC) or less per parcel of land
 - Be located in the Commonwealth of Massachusetts, which includes municipal light district territories
 - Use some of its generation on-site and be interconnected to the utility grid
 - Have a Commercial Operation Date of January 1, 2008, or later
 - Cannot have received certain levels and types of funding
- Online application
- PV Detail Form
- Need *Authorization to Interconnect* from local utility before SRECs can be generated
- Review process is quick and straightforward (30 days or less)



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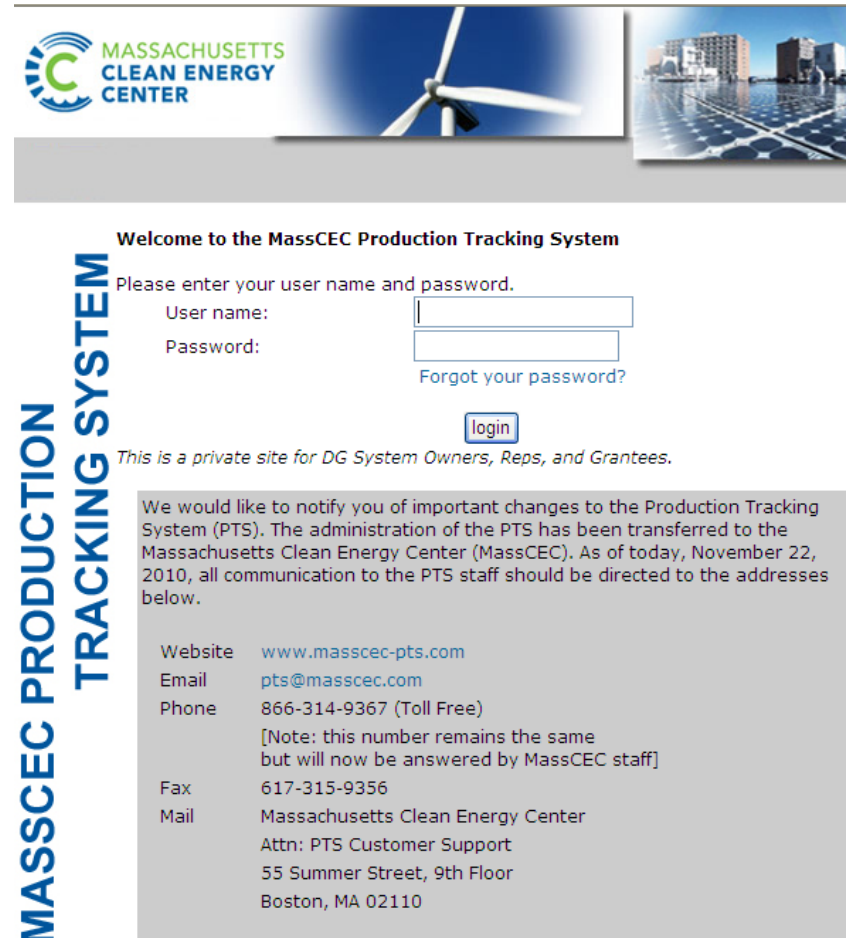
Application Process

- Gen. Unit Owners or Authorized Rep. submit Statement of Qualification Application (SQA) to DOER
- Also submit PV Detail Form, copy of Authorization to Interconnect
- DOER sends PV Detail Forms to MassCEC
- MassCEC confirms eligibility and registers projects in PTS
- MassCEC informs DOER of eligibility and registration
- DOER qualifies system(s) and requests NEPOOL GIS to mark as SREC eligible

System Performance Details					
System Azimuth (in degrees)	System Inclination (in degrees)	Surface Area (sq ft entire array)	PV Panel Rated Efficiency (%)	Percent of System Shaded	System Capacity (kW DC)
180	2	79269	13.40%	2.00%	983.430
180	10	7,200	19.30%	0.00%	61.000
199	38	52680	12.00%	1.00%	106.700
170	43	38,038	13.80%	0.00%	112.900
180	38	38,200	12.00%	0.00%	64.960
183	43	27,000	13.80%	0.00%	56.400
181	10	6,384.5	14.10%	0%	80.500
197	13	8,103.5	14.10%	0%	100.000
156	10	11,768.9	14.10%	0%	154.600

Reporting Process

- Registered system owners report production monthly to PTS account
- MassCEC performs QA on data collected
- Follows up with any systems with issues
- Uploads production totals to corresponding generator accounts at NEPOOL GIS (quarterly)
- MassCEC will conduct audits on 10% of all SREC eligible systems



MASSECEC PRODUCTION TRACKING SYSTEM

Welcome to the MassCEC Production Tracking System

Please enter your user name and password.

User name:

Password:

[Forgot your password?](#)

This is a private site for DG System Owners, Reps, and Grantees.

We would like to notify you of important changes to the Production Tracking System (PTS). The administration of the PTS has been transferred to the Massachusetts Clean Energy Center (MassCEC). As of today, November 22, 2010, all communication to the PTS staff should be directed to the addresses below.

Website	www.masscec-pts.com
Email	pts@masscec.com
Phone	866-314-9367 (Toll Free) [Note: this number remains the same but will now be answered by MassCEC staff]
Fax	617-315-9356
Mail	Massachusetts Clean Energy Center Attn: PTS Customer Support 55 Summer Street, 9th Floor Boston, MA 02110

SREC Program Design Features

Program design features help ensure market stability and balance

- Adjustable Minimum Standard
maintains SREC demand/supply in reasonable balance
- Forward ACP Rate Schedule
proposed; provides investor certainty
- Solar Credit Clearinghouse Auction Account
essential price support mechanism to assure SREC floor price
- Opt-In Term
provides right to use Auction, adjusted to throttle installation growth rate
- These features work together to ensure the market will remain in balance as more PV is built

Minimum Standard Adjustment

Compliance Year	Compliance Obligation (MWh)	Minimum Standard	Equivalent Full-Year Solar Capacity (MW)
2010	34,164	0.0679%	30
2011	78,577	0.1627%	69
2012	81,559	0.1630%	72

For 2012 and beyond, the Minimum Standard (Compliance Obligation) is adjusted each August according to a formula set in the program regulation.

2012 Min. Stand = 2011 Min. Stand

+ [Projected 2011 SRECs – Actual 2010 SRECs] x 1.3

– 2010 ACP Volume + 2010 Banked Volume + 2010 Auction Volume

Actual 2012 Calculation

81,559 MWh = 78,577 MWh + [29,056 – 2,738] x 1.3 – 31,231 + 0 + 0



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Proposed ACP Rate Schedule

- DOER recently proposed a 10-year ACP Rate Schedule
- Should help reduce market risk and uncertainty
- Maintains current ACP Rate through 2013 before reducing 5% annually
- DOER accepted written comments on proposal through August 15th
- Will issue an RPS Guideline after considering comments received
- Will move to insert schedule into the MA RPS Class I Regulation shortly after the Guideline has gone into effect

Compliance Year	ACP Rate per MWh
2012	\$550
2013	\$550
2014	\$523
2015	\$496
2016	\$472
2017	\$448
2018	\$426
2019	\$404
2020	\$384
2021	\$365
2022 and after	added no later than January 31, 2012 (and annually thereafter) following stakeholder review

Program Design: Opt-in Term

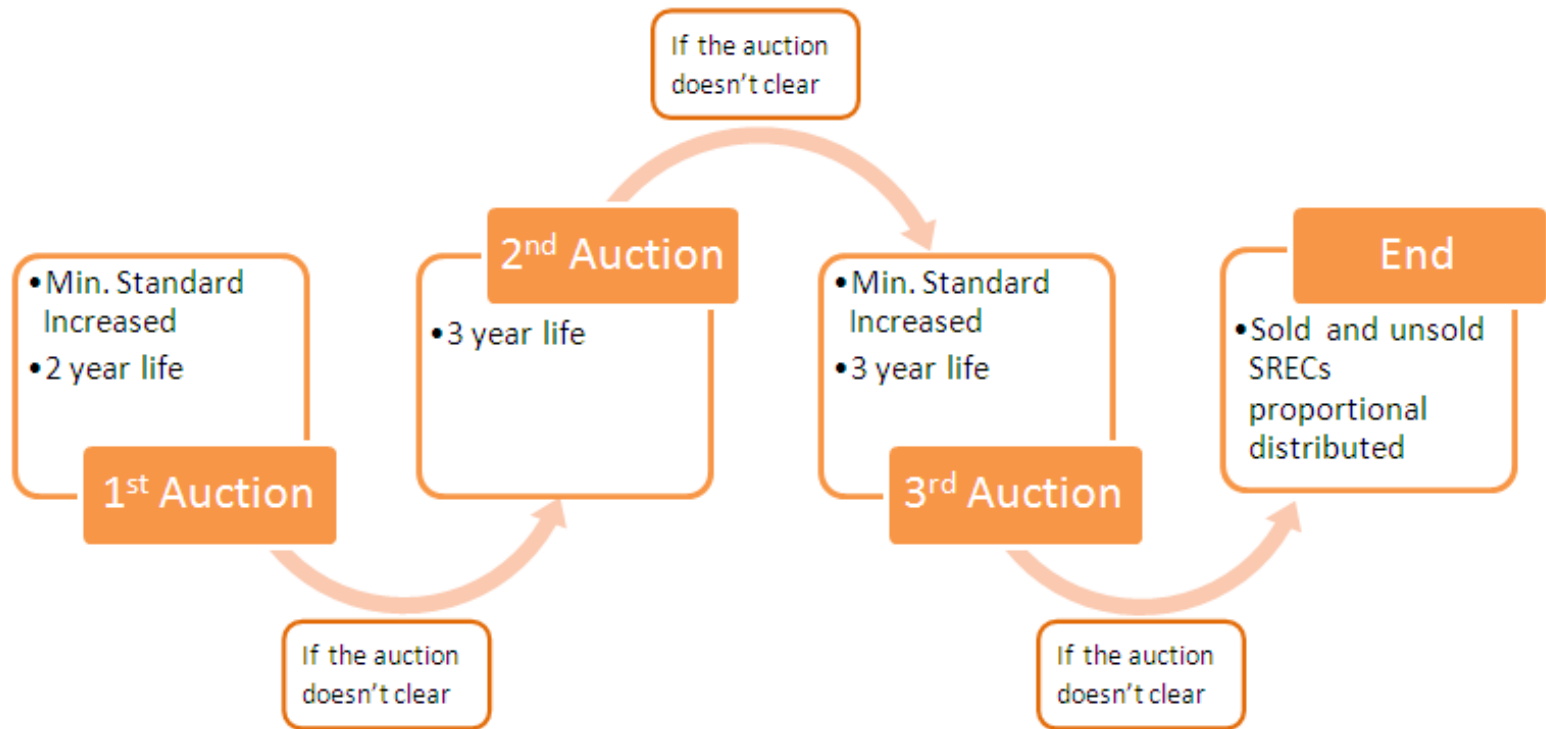
- The Opt-In Term is the number of quarters a qualified project has the right to deposit SRECs into the Auction Account (to be assured floor price). The Opt-In Term is currently 10 years (40 quarters), but can be adjusted each July for subsequent qualified projects.
- Opt-In Term Adjustments
 - **Long Market:** Opt-In Term reduced by 4 quarters for each 10% of Compliance Obligation deposited into the Auction Account
 - **Short Market:** Opt-In Term increased by 4 quarters for each 10% of Compliance Obligation met through ACP Payments
 - Opt-In Term may not increase or decrease more than two years as a result of an annual adjustment, nor can it exceed 10 years.

Price Support – Auction Mechanism

- Solar Credit Clearinghouse Auction Account
 - Open every year from May 16th – June 15th
 - Any unsold SRECs may be deposited into the Account
- Auction will be held no later than July 31st, but after the Minimum Standard adjustment is announced
- Deposited SRECs are re-minted as “extended life” SRECs (good for compliance in either of the following two Compliance Years)
- SRECs are offered to bidders for a fixed price of \$300/MWh before being assessed a \$15/MWh auction fee by DOER. Bidders bid on volume willing to buy at the fixed price
- SREC owners will be paid \$285/MWh for each SREC sold through the Auction



Price Support – Auction Mechanism



Important Dates

Date	Event
January 15	SRECs from Quarter 3 of the previous calendar year are minted at the NEPOOL GIS
January 31	Any change in the ACP rate announced by this date
April 15	SRECs from Quarter 4 of previous calendar year are minted at NEPOOL GIS
May 16 - June 15	Solar Credit Clearinghouse auction account available for deposit of SRECs
July 1	Compliance Filings due from Retail Electric Suppliers (Load Serving Entities)
July 15	SRECs from Quarter 1 of current calendar year are minted at NEPOOL GIS
July 20	Opt-in term announced, effective immediately for subsequently qualified units
July 31	Auction held no later than this date, if the auction does not clear, DOER shall conduct a new auction within three business days
Cleared auction date + 10	Each successful bidder is required to submit payment for the awarded volume of SRECs within 10 business days
August 30	The final Minimum Standard shall be announced by DOER not later than this day
October 15	SRECs from Quarter 2 of the current calendar year are minted at NEPOOL GIS



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Current SREC Program Statistics – 11/2/11

- Over 1200 applications received
- 1013 qualified units
- Approximately 41 MW qualified
- Over 27 MW of qualified projects installed
- 2,741 SRECs created in 2010
- 2,358 SRECs created in Q1 2011
- 7,141 SRECs created in Q2 2011

	Number of Systems	Capacity (MW)
Applications Received	1205	57.5
Applications under Review	192	16.6
Applications Qualified	1013	40.9
Qualified but Installation Incomplete	26	13.4
Installed	987	27.5

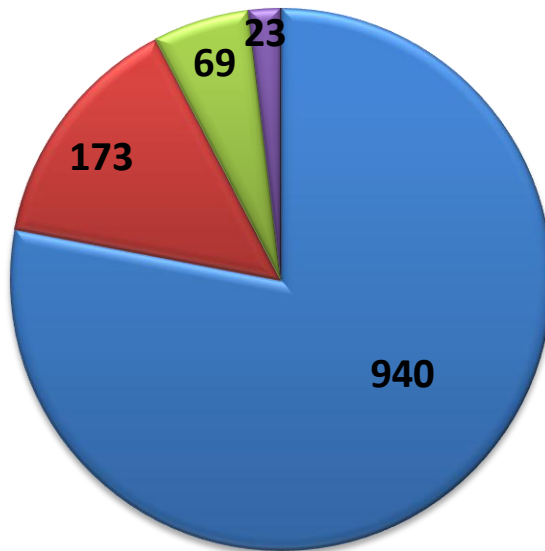


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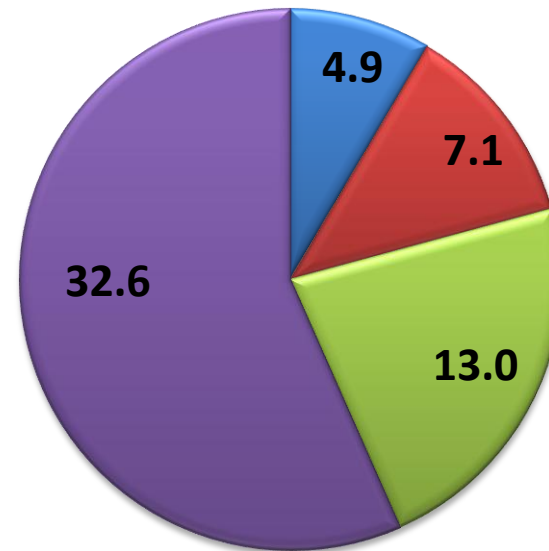
Current SREC Program Statistics – 11/2/11

Activity by System Size

of Applications



of MW



- < 10 kW
- 10-100 kW
- 100-500 kW
- 500kW and up

Questions

DOER Solar Website: www.mass.gov/energy/solar

Contact: DOER.SREC@state.ma.us